Human Choice and Computers HCC11
All abstracts

E-retailing Ethics in Egypt and its effect on customer repurchase intention

Gomaa Agag, Ibrahim Elbeltagi, PhD

Abstract. The theoretical understanding of online shopping behaviour has received much attention. Less focus has been given to the formation of the ethical issues that result from online shopper interactions with e-retailers. The vast majority of earlier research on this area is conceptual in nature and limited in scope by focusing on consumers' privacy issues. Therefore, the purpose of this paper is to propose a theoretical model explaining what factors contribute to online retailing ethics and its effect on customer repurchase intention. The data were analysed using variance-based structural equation modelling, employing partial least squares regression. Findings indicate that the five factors of the online retailing ethics (security, privacy, non-deception, fulfilment/reliability, and corporate social responsibility) are strongly predictive of online consumers' repurchase intention. The results offer important implications for e-retailers and are likely to stimulate further research in the area of e-ethics from the consumers' perspective.

Keywords: E-retailing; online retailing ethics; repurchase intention; structural equation modelling.

Cross-cultural aspects of users' experiences in enterprise communication by new media

Jose Juan Cañas-Bajo, Pertti Saariluoma, Eleni Berki

Abstract. Social media platforms are used by companies and institutions as new forms of interaction, aiming at becoming visible in the global, multicultural market. This research targets to find out how to make *good* use of these new communication tools by considering the following: which features of mass media may cause success or failure in achieving the goal of reaching more people and making the company benefit from its use? In particular, we will investigate the ways in which video products may help in developing new, more efficient forms of operations of industrial organizations. The aim is to measure the different culture users' experience(s) with audiovisual products in a comprehensive manner that includes socio-cognitive and affective aspects of the experience(s). Since in the global market it is critical that video products can be used in different socio-cultural contexts, this project also aims to explore socio-cultural factors that may affect video use and impact.

Keywords: Audiovisual, Communication, Cross-cultural Emotions, Industrial video, User experiences, Cultural Diversity.

Cooperation, Coordination and Collaboration in a Cluster of Firms: The Role of Digital Platforms

Luca Cremona, Tingting Lin, Aurelio Ravarini

Abstract. In contemporary inter-organizational relationships, digital platforms have gained attention for the enabling and improvement of communication, knowledge generation and information diffusion. This paper focuses on the cooperation, coordination and collaboration among a cluster of firms engaged in the usage of a digital platform. By integrating qualitative enquiries and social network analysis, we illustrated the role of the digital platform in the interaction within this cluster. Our research integrates theories pertaining to cooperation, coordination and collaboration in a framework of multiple stages, and clarifies the role of digital platform in this framework.

Keywords: Cluster of firms, collaboration, cooperation, coordination, digital platforms.

A Little-Known Chapter in the History of Computing in Belgium:

the *Machine Mathématique IRSIA-FNRS*

Marie d'Udekem-Gevers

Abstract. Based on original documents, this article deals with the first stored program computer designed and built in Belgium in the early 1950's, the *Machine Mathématique IRSIA-FNRS* (MMIF). After addressing the history of this prototype, it describes the Machine and highlights its specificities. Then, showing how the computing techniques that led to this machine were originally disseminated in Belgium, it underlines the Swiss (particularly *Eidgenössische Technische Hochschule* (ETH)) influence on this project.

Keywords: Belgium, dissemination of innovations, history of computing, stored program computer.

Performing Elderliness – intra-actions with digital domestic care technologies

Sisse Finken, Christina Mörtberg

Abstract. We discuss the process of meeting digital technology when entering a senior age, by taking a closer look at how different modes of independence and elderliness are (co-)constituted in relation to digital domestic care technologies. Specifically, we suggest reading independence and elderliness as shaped by both the discursive and the material. Our starting point is the notion of intra-action as introduced in Feminist Technoscience. Thinking through use and design of digital technology from a standpoint of Feminism prompts us to widen the perspective on living with such technologies and, thusly, to raise questions about the process of coming of age as an independent person with such care technologies.

Keywords: Performativity, intra-action, elderliness, digital care technology, smart house, participatory design

A Privacy preserving Design Framework in relation to an Environmental Scanning System for Fighting Organized Crime

Anne Gerdes

Abstract. This paper represents preliminary recommendations regarding the development of a privacy preserving system design framework related to the EU project, ePOOLICE, which aims at developing an environmental scanning system for fighting organized crime by providing law enforcement agencies opportunities for strategic proactive planning in response to emerging organized crime threats. The environmental scanning is carried out on a variety of sources, focusing on early warning and the disclosure of crime trends, not on individuals. Consequently, personal data are not relevant in the information context of ePOOLICE, and therefore the system will not make use of any kind of sensitive information. Particular attention are paid to the environmental scanning of data streams from social networking sites; based on the assumption that ethical and privacy issues with regard to social media scanning represent a significant challenging scenario to meet in developing a privacy preserving framework for ePOOLICE.

Electronic Patient Records and Benefits to Clinicians: an Actor-Network Study of a Technological Innovation in the NHS

Mhorag Goff

Abstract. This paper draws on findings from research in progress to discuss the ways in which EPRs are implicated in changing work practices for clinicians within the NHS in England. The study set out to question the apparent inevitability of this technology by investigating whether EPRs benefit their users. Recognising that they have been explicitly conceived to serve multiple purposes, the benefits to front line clinical users are dependent on the purposes for which EPRs are being used and the additional responsibilities and risks implied by the non-clinical interests inscribed.

The study uses Actor-Network Theory as a means to investigate the relationships that constitute the EPR, and in doing so to identify the entangled sets of interests brought to bear on the realisation of this technology. The findings suggest that sharing of patient data beyond the local largely privileges secondary uses while benefits to clinicians are concentrated on locally shared EPRs.

On the Probability of Predicting and Mapping Traditional Warfare Measurements to the Cyber Warfare Domain

Prof Marthie Grobler, and Ignus Swart

Abstract: Cyber warfare is a contentious topic, with no agreement on whether this is a real possibility or an unrealistic extension of the physical battlefield. This article will not debate the validity and legality of the concept of cyber warfare, but will assume its existence based on prior research. To that end the article will examine research available on traditional warfare causes, elements and measurement techniques. This is done to examine the possibility of mapping traditional warfare measurements to cyber warfare. This article aims to provide evidence towards the probability of predicting and mapping traditional warfare measurements to the cyber warfare domain.

Currently the only way of cyber warfare measurement is located in traditional information security techniques, but these measurements often do not adequately describe the extent of the cyber domain. Therefore, this paper aims to identify a set of criteria to aid in the prediction of cyber warfare probability.

Open Consent and Informational Obligations: Can Biobanks Still Collect Information Prospectively under the Data Protection Regulation?

Dara Hallinan, Michael Friedewald

Abstract. This article focuses on whether a certain form of consent used by biobanks – open consent – is compatible with the Proposed Data Protection Regulation. In an open consent procedure, the biobank requests consent once from the data subject for all future research uses of genetic material and data. However, as biobanks process personal data, they must comply with data protection law. Data protection law is currently undergoing reform. The Proposed Data Protection Regulation is the culmination of this reform and, if voted into law, will constitute a new legal framework for biobanking. However, the Regulation puts strict conditions on consent – in particular relating to information which must be given to the data subject. It seems clear that open consent cannot meet these conditions. However, the Regulation was not drafted with biobanking in mind. Accordingly, an argument could be made that the applicable consent requirements should be rethought.

Connecting Social Capital by Social Media

Halvdan Haugsbakken

Abstract. Established sociological research on social networks and social capital has argued that large quantities of connections can represent access to resources. This claim has been challenged, due to the advent of social network sites. Researchers have little insights on how social actors use social network sites to organise particular web mediated social practices, besides for knowing they are employed for socialisation. There is also little research on how social actors *use* and *connect* to different social media applications and apply the resource embedded in them. This paper addresses that matter. It introduces a user perspective on how a group of social actors use a variety of social media application as resources, to carry out web mediated social practices. To empirically analyse this, the paper shows how a sample of Norwegian high school students use different types of social media applications for this purpose.

Enhancing Innovation Potential through Local Capacity Building in Education

Jaana Holvikivi

Abstract. Global technology education is largely dominated by Western universities. Students from developing countries face an enormous challenge when moving from their local education system into the competitive international education market. Their local knowledge gets lost in a foreign education system where the students are

required to acquire a new set of skills. This paper presents a survey among international technology students that highlights the differences. Moreover, the paper explores the situation from the developing country perspective, and brings forth a proposal for strengthening the education capacities in the developing countries particularly in the fields of ICTs and mobile technologies. Strengthening local knowledge building would allow innovations based on local needs and potentials.

Independent agents and ethics

Iordanis Kavathatzopoulos

Abstract. The development of Information Technology, systems, robots, etc., that are capable of processing information and acting independently of their human operators, has been accelerated as well as the hopes, and the fears, of the impact of those artifacts on environment, market, society, on human life generally. Many ethical issues are raised because of these systems being today, or in the future, capable of independent decision making and acting. In the present paper it is discussed how ethical decision support pro-grams can be integrated into robots and other relatively independent decision making systems to secure that decisions are made according to the basic theories of philosophy and to the findings of psychological research.

Working At the IT Ethics Coal-Face: a Personal Perspective

Sheelagh Frances Margaret Keddie

Abstract. This paper reflects upon the relationship between personal and professional ethics. The author uses her experience as an IT practitioner in the field of information governance to express reservations regarding the limits to scope and capacity of any code of professional ethics. Her conclusion is that a code of conduct for the IT professional is likely in practice to be limited to competent and lawful behaviour on the part of the practitioner.

Information Technology – the Unredeemed Opportunity to Reduce Cultural and Social Capital Gaps between Citizens and Professionals in Healthcare

Jani S.S. Koskinen and Sari Knaapi-Junnila

Abstract. Patient empowerment and involvement are significant aims in long-term diseases, but short appointments give only little room for conversations. However, the patients need various information and support from healthcare professionals. So, there are pressures to develop new, effective ways for reciprocal communication in addition to the traditional ones.

Courses of action related in care, amongst other things, are unfamiliar to ordinary citizens, as professionals operate on their home ground having the power to control situations. Furthermore, healthcare jargon, often used in healthcare settings, is unintelligible for many laymen. This is problematic because it may inhibit the aimed empowerment and involvement from happening.

Key findings from Coper-pilot research project alongside the former research´s findings indicate that cultural and social gap between citizens´ and healthcare professionals´ may hinder their communication and mutual

understanding. Information technology and salutogenic approach together can act as means to reduce that gap by strengthening layman's position.

The Time of our Lives: Understanding Irreversible Complex User Experiences

David Kreps

Abstract. The science of complexity has been introduced to Information Systems (IS) but thus far with seemingly little impact. This paper argues that its application can be located in the burgeoning field of User Experience (UX) in digital business practice. Both these developments are looking at *time* in a new way, specifically at the irreversibility of many living processes, whilst simultaneously involving, including, and relying upon very scientific and computational data. The paper introduces a forthcoming research project with a UX company seeking to discover more.

PHR Revisioned – Navigating in the Personal Health Space

Janne Lahtiranta and Markku I. Nurminen

Abstract. The field of health care and well-being services is changing due to economic and societal reasons. One consequence of this ongoing change is that individuals are encouraged to take an active role in their health and well-being related endeavours. The objective of our conceptual work is to support this change and identify mechanisms that can help individuals in their endeavours. Our work is based on the findings of a project that are reassembled under the metaphor of health navigator. The envisioned functions of the navigator are analysed using activity theory as the underlying framework, and as a consequence, human activity as the unit of analysis. The purpose of this integrative work is to create a concept that draws together the complex aspects that define one's position in the health space; the overarching state of health related efforts.

Sustainable ICT: A Critique from the Perspective of World Systems Theory

Thomas Taro Lennerfors, Per Fors, Jolanda van Rooijen

Abstract. Even though the ICT (Information and Communication Technology) industry has historically been spared the critique of being environmentally unfriendly, society has as of late recognised the negative environmental effects of the ICT industry. However, such critique has been gradually replaced by the concept of *Sustainable ICT*, in which ICT is almost seen as a saviour, something with big potential of solving economic, societal and environmental issues. In this paper, our aim is to critically discuss the notion of Sustainable ICT by turning to an ecological perspective of World Systems Theory (WST). Immanuel Wallerstein, the main proponent of WST argues that the success of developed (core) countries today is a product of systematic unequal exchange of raw material, goods and labour with underdeveloped (peripheral) countries. Alf Hornborg, the Swedish Marxist ecologist, develops WST by focusing on the global distribution of environmental degradation. In this paper, we present Hornborg's ecological WST, we apply it to ICT by means of examples from the ICT Value Chain (from materials extraction to disposal) in order to illustrate the global distribution of environmental degradation. We argue that WST is a fruitful, and critical, alternative perspective to the more optimistic view of Sustainable ICT.

Ingenuity in Isolation: Poland in the International History of the Internet

Christopher Leslie and Patrick Gryczka

Abstract. The popular understanding of the invention of the Internet is that it was the work of researchers in the United States working in relative isolation. However, the Internet is about connection, and so its success required the independently developed networks of the international community. By analyzing early network development in politically isolated Poland toward the end of the Cold War, one sees development concurrent to the development of the Internet but separated technologically through CoCom trade embargoes. By analyzing information technology periodicals, FidoNet newsletters, and other sources, a number of projects have been identified: data distribution over radio and the use of computer networks to protest communist propaganda. In addition to these amateur efforts, we learned about commercial products and academic research. While these efforts were not successful in a conventional sense, they do demonstrate how the computer industry and network research in Poland played an important role despite the political restrictions.

Keywords: Internet, Poland, Cold War, innovation, technology transfer, ethics

Security and Privacy as Hygiene Factors of Developer Behavior in Small and Agile Teams

Kai-Uwe Loser, Martin Degeling

Abstract. User motivations are often considered in human computer relations. The analysis of developer behavior often lacks this perspective. Herzberg's distinction of motivators and hygiene factors adds a level for the analyses of those sociotechnical phenomena that lead to skipping of security and privacy requirements especially in agile development projects. Requirements of security and privacy are not considered nice-to-have, but as necessary hygiene factors of systems attractiveness, motivation for extra effort is low with respect to those requirements. The motivators for developers – functionality that makes a system special and which is valued by customers and users are dominant for the decisions about priorities of development – hygiene factors like many security requirements get a lower priority. In this paper we introduce this theory with relation to known problems of (agile) development projects with respect to implementing security and privacy. We present this with a case study of mobile app development in a research project that we analyzed by security and privacy aspects.

Keywords: security and privacy, agile development, Herzberg's theory, motivation.

"Theaters of Operation": War and Perceptual damage in Videogames

John Martino

Abstract. This paper briefly examines the manner in which First Person Shooter videogames such as America's Army and Call of Duty present new spaces within which war is both represented and acted out. In the paper the role played by First Person Shooter games as propaganda vehicles and as part of what has been described as the military-industrial-media-entertainment-complex will be examined. The paper concludes by describing the manner with which videogames have been harnessed to project US Military power in order to inflict a form of "perceptual damage".

Keywords: Videogames, First Person Shooter, Perceptual Damage, War, Militarization, Soft power.

Origins, Developments and Future of the Concept of Innovation. Opening the Economic Framing of Innovation to Social, Ethical, Political Parameters to Achieve Responsibility: Strengths and Limits

Laurence Masclet, Philippe Goujon

Abstract. The concept of innovation is making a successful comeback in philosophy, particularly with the qualifier "responsible" attached. This attachment of the qualification "responsible" reflects the idea that the concept of innovation has to be opened to new considerations, namely social, political and ethical concerns. Since the 18th century, innovation has been the object of economics and science of business and growth. This paper aims at testing the legitimacy of these attempts to open the concept and redefine it in terms other than those of economics. We start with a contextualization of the use of the term innovation, to see why it has been so strongly associated with the market, growth and business then we see what is at stake in opening it up to other considerations. We consider the limits of this opening and look at possible ways to attach other meanings to the concept, without losing significance by too much inclusion. The solution proposed is that instead of imposing new parameters and trying to shift the concept, we could keep the economic bias of the term, but challenge it with concerns expressed by people coming from the field of economics who are trying to propose an alternative framework for economics that would take into account other concerns, and in which responsible innovation could find a place.

Towards an Ontological Model Defining the Social Engineering Domain

Francois Mouton, Louise Leenen, Mercia M. Malan, H.S. Venter

Abstract The human is often the weak link in the attainment of Information Security due to their susceptibility to deception and manipulation. Social Engineering refers to the exploitation of humans in order to gain unauthorised access to sensitive information. Although Social Engineering is an important branch of Information Security, the discipline is not well defined; a number of different definitions appear in the literature. Several concepts in the domain of Social Engineering are defined in this paper. This paper also presents an ontological model for Social Engineering attack based on the analysis of existing definitions and taxonomies. An ontology enables the explicit, formal representation of the entities and their inter-relationships within a domain. The aim is both to contribute towards commonly accepted domain definitions, and to develop a representative model for a Social Engineering attack. In summary, this paper provides concrete definitions for *Social Engineering*, *Social Engineering attack* and *social engineer*.

Systematic ICT surveillance by employers: Are your personal activities private?

Arlene J. Nicholas, PhD

Abstract. This paper reviews the various methods of information and communications technology (ICT) that is used by employers to peer into the work lives and, in some cases, private lives of employees. Some of the most common methods – such as computer and Internet monitoring, video surveillance, and global positioning systems (GPS) – have resulted in employee disciplines that have been challenged in courts. This paper provides background information on United States (U.S.) laws and court cases which, in this age of easily accessible information, mostly support the employer. The paper does not provide a detailed analysis or present and defend the author's opinions nor does it undertake any form of comparative study of U.S. (and other nations') legislation. Assessments regarding regulations and policies, which will need to be continually updated to include new methods of employee monitoring, are considered. Whether employees are working from an office or home, using personal or company equipment, it is argued that they should be notified of any monitoring. The researcher also suggests that any such monitoring should only be used for business purposes. Future studies on employee satisfaction and productivity, that may identify employees' tolerance and acceptance of systematic ICT surveillance, are recommended.

Human-Driven Design: A human-driven approach to the design of technology

Marketta Niemelä, Veikko Ikonen, Jaana Leikas, Kristiina Kantola, Minna Kulju, Antti Tammela, Mari Ylikauppila

Abstract. In the midst of the many large-scale societal and technological transformations, there is a need for design approaches that respect human values and needs and are able to integrate multiple perspectives into technology design in order to work for outcomes that are interesting, feasible and sustainable in all senses of the term. For this purpose, we discuss a possible approach to the design of technology that is driven by human and social values, is collaborative in nature and reflective in terms of responsibility and ethics in the design. We call this approach 'Human-Driven Design' and argue that it is needed especially when designing for enabling and emerging information and communication technologies. A human-driven design approach should focus on the early phases of design, be strongly future-oriented and aim to contribute to innovation for a sustainable society and better quality of life in the future.

Participation of Youth in Political Processes Using the Example of Digital Policies

Youth Stakeholder in the Global Internet Governance: Accessibility, Participation and Representativeness

Anna Orlova

Abstract. European as well as global youth organisations are failing to provide the opportunities for young people to participate in the digital policy debate on the global level of Internet Governance. Due to the complexity and exclusivity of political IG processes, lack of institutionalised framework for participation, lack of capacity building on the mass scale and civil society bubble, current models of participation are not feasible for the digital policy field. This raises certain concerns towards underrepresentation of young people and whether current models and types of media as means of participation are working in the field of Internet Governance. Therefore this research aims at answering the question whether youth participation works in the digital policy field on the level of global Internet Governance. It outlines research methodology and research steps of how proposed qualitative and quantitative methods of data analysis to be applied and carried out.

Keywords: Multi-Stakeholder Governance, Global Internet Governance, Youth Participation, NETmundial, Digital Activism

Slow Tech: The Bridge between Computer Ethics and Business Ethics

Norberto Patrignani, Diane Whitehouse

Abstract. This paper addresses the difficult task of implementing the concept of Slow Tech, that is, information and communication technology (ICT) that is good, clean and fair, in a business environment. It investigates the democratic, environmental, and social challenges currently facing ICT vendors. More specifically, it examines the opportunities available for these companies to use Slow Tech as a bridging mechanism between their Computer Ethics and their Business Ethics strategies, based on Corporate Social Responsibility. Last but not least, it highlights what some "next step" questions for further investigation and implementation might be and the challenges of implementing these.

Keywords: Business Ethics, Computer Ethics, Corporate Social Responsibility, Information and Communication Technology (ICT), Slow Tech

Towards a Smart Community Centre: SEIDET Digital Village

Jackie Phahlamohlaka, Zama Dlamini, Thami Mnisi, Thulani Mashiane, Linda Malinga

Abstract. South African communities are constantly being developed through new ICT projects which are initiated by individuals, government and private organisations. The problem with these developments is that they are implemented in isolation. This isolation causes limited sharing of resources, duplication, poor-governance of the resources and in worse-case scenarios, failure of project initiatives. This paper proposes a model that could be used to address these problems by focusing on the SEIDET community centre using it as an example. The model follows a descriptive analysis of ICT related work spanning over two decades performed within the SEIDET context, including the ongoing SEIDET Digital Village. The benefits of the proposed smart community centre model include

community and rural development through sharing of scarce ICT resources. It could further provide support for entrepreneurs through training interventions, action-based research for policy development as well as spawn local innovation and free-sharing of resources and services.

Implementation Criteria of University Computer Education in Spain between First Experiences and the European Higher Education Space (EHES)

Ramon Puigjaner, Jordi Fornes

Abstract. This paper intends to present a short overview of the different criteria used in the university environment for setting up the computer education in Spain since the first teaching experiences in this do- main to the current implementations adapted to the European Higher Education Space (EHES). Also some samples of these different curricula are presented.

Problem in Patient Information System Acquirement in Finland: Translation and Terminology

Minna Rantanen and Olli I. Heimo

Abstract. Healthcare information systems and their development has risen to be an issue discussed widely amongst Finnish media and public. The discussion varies from the many faults in design, functionality, usability and the enormous costs these systems produce to the citizens as well as how to best fix these problems. Yet it seems that common terminology with eHealth systems in the discussion is lacking rendering the quality of the discussion far from where it could be. Hence this paper will focus on the issue of terminology-based problems in Finnish public eHealth development discussion.

Micro-innovation and expertise in technological and creative enterprise: A cross-cultural user's design approach

Leire Santamaría, Pertti Saariluoma, Eleni Berki

Abstract. Innovation has become an essential element for industries' survival. This research targets to improve the thinking processes for micro-innovation. The authors will study and compare how micro-innovation processes take place by creative workers. The next questions are on the research focus: What are the thought/thinking processes leading to innovation; are there any differences in these processes as applied in different industries? In different industries, what are the conditions that increase the probability of obtaining innovative products? Are there any cultural differences in the thought processes leading to innovation? These questions will be approached through creative workers, that are experts in audiovisual and technological industries. Audiovisual and technological industries in Finland and Spain will be compared and contrasted in order to address the question whether there are differences in micro-innovation processes depending on i) the type of organization and ii) socio-cultural and national factors.

Reasoning vs. Orthodoxy, or, The Lesson from the Fate of Russian "Reasoning Machine"

Valery V. Shilov, Sergey A. Silantiev

Abstract. This paper devoted to Russian scientist Alexander Schukarev and his work on logical machine. Historically, this work may be divided on two periods – before and after Russian October revolution. We try to understand and explain why Schukarev′s activity in this field was ceased and his logical machine was forgotten for the long time.
Keywords: Stanley Jevons, Pavel Khrushchev, Alexander Schukarev, logical machine, reasoning, ideology.

The personal documentary funds of the computer technology founders at the Polytechnic Museum

Marina Smolevitskaya

Abstract. The Polytechnic Museum has the Fund Collection "Electronic Digital Computing Machines". This Fund Collection is the only one of such variety and size in Russia. There are more eight hundred objects and over two thousands documentary, printed, graphic items today. All four generations of electronic digital computing machines are presented in the Museum. The main part of the Fund Collection is the developments of domestic scientist. The Museum created thirteen personal funds of Russian scientists who devoted their activity to computer science. There are biographical and official documents, scientific manuscripts and publications, descriptions of inventions and certificates of authorship for them, pictures at work and pictures from the family albums in these personal funds.

Keywords: Polytechnic Museum, collection, electronic digital computing machines, documents, pictures, papers, personal funds (unit-linked collections of documents), computer technology founders, Russian scientists

History of the Use of Computers and Information Technology in Education in Universities and Schools in Victoria

Arthur Tatnall, Bill Davey

Abstract: This paper investigates the development of courses in computing and use of computers in education in universities (from the 1930s) and schools (from the 1970s) in Victoria, Australia. The paper describes the significant events of the era and investigates the relationship between the development of courses in the universities and the more vocationally oriented Colleges of Advanced Education (CAE): did one follow from the other? It also investigates the extent of the influence of the universities and CAEs on school computing.

Keywords: History, Computers in Education, History of University Computing, History of School Computing, Victoria.

Australasian Schools – case studies of digitally rich citizens becoming a digital society

Richard Taylor

Abstract. Social media such as Facebook or Twitter are often seen by secondary school students as a gateway to the Internet, however such positive opinions of these sites are not shared by all school administrators.

Over the last 20 years pioneering schools in Australia and New Zealand have invested heavily in information and communication technologies (ICTs) and created communities of digitally rich individuals. However, the extent to which these schools can be considered to have the attributes of a digital society, where there are shared beliefs, policies and practices with respect to the use of ICTs, has not been fully explored.

As these schools continue to heavily invest in ICTs, perhaps the biggest challenges senior managers will need to resolve are the apparent tensions that exist between the values and attitudes of staff, students and parents populations towards the ever changing digital environment. While it may never be possible for these schools to completely exhibit the characteristics of a digital society, it is possible to measure the extent to which these schools shares common values and attitudes, and use the findings to inform future digital strategies.

Human perception of the measurement of a network attack taxonomy in near real-time

Renier van Heerden, Mercia M. Malan, Francois Mouton, Barry Irwin

Abstract This paper investigates how the measurement of a network attack taxonomy can be related to human perception. Network attacks do not have a time limitation, but the earlier its detected, the more damage can be prevented and the more preventative actions can be taken. This paper evaluate how elements of network attacks can be measured in near real-time(60 seconds). The taxonomy we use was developed by van Heerden et al (2012) with over 100 classes. These classes present the attack and defenders point of view. The degree to which each class can be quantified or measured is determined by investigating the accuracy of various assessment methods. We classify each class as either defined, high, low or not quantifiable. For example, it may not be possible to determine the instigator of an attack (Aggressor), but only that the attack has been launched by a Hacker (Actor). Some classes can only be quantified with a low confidence or not at all in a sort (near real-time) time. The IP address of an attack can easily be faked thus reducing the confidence in the information obtained from it, and thus determining the origin of an attack with a low confidence. This determination itself is subjective. All the evaluations of the classes in this paper is subjective, but due to the very basic grouping (High, Low or Not Quantifiable) a subjective value can be used. The complexity of the taxonomy can be significantly reduced if classes with only a high perceptive accuracy is used.

Proposed Model for a Cybersecurity Centre of Innovation for South Africa

Joey Jansen van Vuuren, Marthie Grobler, Louise Leenen, and Jackie Phahlamohlaka

Abstract Most communications in the new era are dependent on Information and Communication Technology (ICT). In addition, infrastructure is becoming increasingly interconnected. This not only makes lives easier, but also leaves technology users more vulnerable. Cybercrime, digital espionage and other cyber disturbances dictate the news reports on a daily basis. In general, cyber-attacks are no longer confined to small-scale rogue hackers. Cyber-attacks

are now a part of organised crime and the underground economy, posing a real threat to critical infrastructure; possibly with state actors driving these actions. The responsibility to protect ICT stretches beyond individual companies, sectors and even beyond nations. The authors of this paper propose a Cybersecurity Centre Of Innovation (CCOI) as a central point for the South African government, business and academia to create a secure cyber space for the country: a cyber space without crime that is resilient and resistant to disruptions; a cyber space that promotes innovation, helps the economy and enhances national security. The key driver of the proposed CCOI is collaboration; solutions to cyber risks require a combined approach. This paper describes the organisational structure, functions, activities and benefits of a CCOI.

Keywords: Cybersecurity, South Africa, Centre of Innovation, national security

Computers, Time and Speed:
Five Slow Tech Case Studies

Diane Whitehouse and Norberto Patrignani

Abstract. This chapter examines briefly the notions of time and speed. It introduces the notion of Slow Tech: information technology that is *good*, *clean* and *fair*, and places an especial emphasis on technology that is *clean*. This chapter does not delve deep into the Slow Tech concept. Rather, it highlights a set of arguments about why speed is not always important or necessary. People are now increasingly beginning to think about much longer periods and phases that may extend at least as long as the existence of human beings on the globe. As illustrations, the chapter explores five specific case studies. Each comes from a different location, yet all describe global implications and challenges. One example is in fact a mathematical model. Two sites, in sympathy with the location of the Human Choice and Computing 11 (HCC11) conference, are from Scandinavia – one from Onkalo, Finland, and a second from Svalbard, a northern Norwegian island. A further two cases are from the United States of America. The logic behind these five case studies strengthens the arguments about why − with the support of the Slow Tech concept − it is increasingly important for society and its many stakeholders to question the current information and communication technology (ICT) obsession with speed and rethink the relationships between society and technology.

Keywords: Action, case studies, life cycle, myth, slow, Slow Tech, speed, thought, time.

Case Study of Practice of the Tea Ceremony (*Sado*) through Distance Education

On the Ethics of ICT

SachikoYanagihara, Hiroshi Koga

Abstract. The purpose of this paper is to consider the meaning of the distance education which utilizes ICT from the viewpoint of the ethicality of ICT. In Particular, this paper would discuss the distance education system of the tea ceremony (specifically, *Ensyu Sado School*) in Japan. This paper is organized as follows. First, the education system of the tea ceremony is introduced. Second, as a case of distance education utilizing ICT, "WEB lessons" of the tea ceremony of traditional Japanese performing arts are taken up. Third, the effect of the distance learning system of the tea ceremony had on the code of conduct of trainees will be discussed. In other words, ethics of ICT in WEB lessons of tea ceremony is considered.

Keywords: Distance Education Systems, Ethics of ICT, the Tea Ceremony